

## 11/08/13     Agenda

- Warm up
- **Remediation packet for Chapter 2 is on my web site, you have until 11/15 to get it to me!**
- Review 3.4 Worksheet (last nights homework)
  - Solving Inequalities with Multiple Operations
- Section 3.4 day 2 - Solving Multi-Step Inequalities
- Homework - Worksheet 3-4 day 2



- ## - Distribute

$-4(d+5)$

$-4d - 20$

$$\begin{array}{r} d + 5 \\ -4 \overline{) -4d - 20} \\ \underline{-4d - 20} \end{array}$$

Section 3.4 - Solving Multi-Step Inequalities day 2  
Target 3D

Solving Inequalities with distribution and CLTs:

$$3(x + 4) < 9 \quad (b + 1) - 4b < -5$$

You Try:

$$\begin{array}{rcl}
 4(2x + 3) & \leq & 36 \\
 8x + 12 & \leq & 36 \\
 -12 & & -12 \\
 \hline
 8x & \leq & 24 \\
 \hline
 x & \leq & 3
 \end{array}$$

Number line:  $\leftarrow \begin{array}{ccc} | & | & | \\ 2 & 3 & 4 \end{array} \rightarrow$  with a solid dot at 3 and an arrow pointing left.

Summary:

When solving inequalities, be sure to distribute and combine like terms BEFORE you add/subtract and multiply/divide from each side!!! Go backwards in PEMDAS

Section 3.4 - Solving Multi-Step Inequalities day 2  
Target 3D

Review:

C L T

Solve and graph the following inequalities.

$$15 \geq 5 + 2(4m + 7)$$

$$15 \geq 5 + 8m + 14$$

$$15 \geq 8m + 19$$

$$-4 \geq 8m$$

$$-\frac{1}{2} \geq m$$

$$m \leq -\frac{1}{2}$$

Solving  
Multi-Step  
Inequalities:

When have variables on both sides of an inequality, we want to move the smaller variable.

Recall when we learned equations with variables on both sides, there were 3 types of outcomes. The same thing happens with inequalities!

Types of  
Solutions:

| Answer                              | Example  | Type of Solution   |
|-------------------------------------|----------|--------------------|
| Variable statements                 | $x < 4$  | REGULAR ANSWER     |
| True statements (variables cancel)  | $9 > 5$  | $\infty$ SOLUTIONS |
| False statements (variables cancel) | $2 > 12$ | NO SOLUTION        |

$$6n - 1 > 3n + 8$$

$$\begin{array}{r} -3n \\ \hline 3n - 1 > +8 \\ +1 \quad +1 \\ \hline 3n > 9 \\ \hline n > 3 \end{array}$$

$$10 - 8a \geq 2(5 - 4a)$$

$$10 - 8a \geq 10 - 8a$$

$$10 \geq 10$$

TRUE

$\infty$  SOLUTIONS

Section 3.4 - Solving Multi-Step Inequalities day 2  
Target 3D

You Try:

$$6m - 5 > 7m + 7 - m$$

$$\begin{array}{r} -6m \\ \hline -5 > 1m + 7 - 1m \end{array}$$

$$-5 > 0m + 7$$

$$-5 > 7$$

$$-5 > 7$$

FALSE STATEMENT  
NO SOLUTION

YOU TRY:

$$3b + 12 > 27 - 2b$$

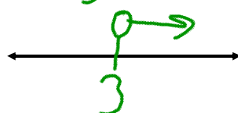
$$\begin{array}{r} +2b \\ \hline 5b + 12 > 27 \end{array}$$

$$5b + 12 > 27$$

$$\begin{array}{r} -12 \\ \hline 5b > 15 \end{array}$$

$$\frac{5b}{5} > \frac{15}{5}$$

$$b > 3$$



$$8 + 6x > 7x + 2 - 1x$$

$$\begin{array}{r} 8 + 6x > 6x + 2 \\ -6x \quad -6x \\ \hline \end{array}$$

$$8 > 2$$

TRUE  
∞ SOLUTIONS

Summary:

When solving inequalities with variables on both sides, move the smaller one to create less work. When you get an answer, remember your three situations. If there is a variable, graph your answer. If the variables cancel, then look to see if it is a true statement (all solutions) or a false statement (No Solutions). Don't forget about flipping your sign if you multiply or divide by a negative number!